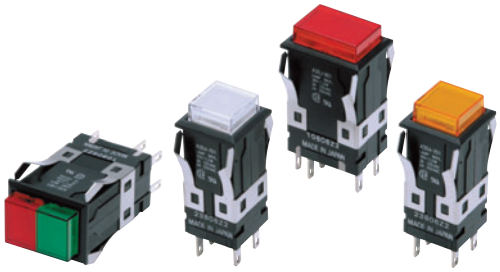
A3S

CSM_A3S_DS_E_6_1

Pushbutton Switch Series with Square 40-mm Body

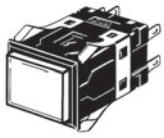
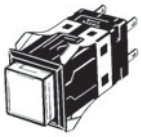
- Combines miniature design with distinct but soft sense of operation.
- Easy panel mounting from the front and simple lamp replacement without tools.



⚠ Refer to *Safety Precautions for All Pushbutton Switches* and *Safety Precautions* on page 18.

List of Models

Lighted Pushbutton Switches

Appearance	Model
Rectangular 	**A3SJ**
Square 	**A3SA**

■ Specifications: Refer to page 12.
■ Dimensions: Refer to page 14.
■ Accessories: Refer to pages 10 to 11.

Model Number Structure

Model Number Legend ..... The model numbers used to order sets are illustrated below. One set comprises the Operation Unit, Lamp, and Socket Unit. For information on combinations, refer to Ordering Information on pages 3 to 4.

1 - 24E R ..... **Single screen**

(1) (2) Left Right

A 3 S J - 9 0 A 3 - 24E RW ..... **Vertical 2-split screen**

Left	Right
R (Red)	W (White)

(1) Shape of Operation Unit

Symbol	Shape
J	Rectangular
A	Square

(2) Switch Specifications

Standard Load

Symbol	Operation	
A	Momentary	SPDT
B	Alternate	
C	Momentary	DPDT
D	Alternate	

Microload

Symbol	Operation	
E	Momentary	SPDT
F	Alternate	
G	Momentary	DPDT
H	Alternate	

- Standard Load
  250 VAC, 2 A
  125 VDC, 0.4 A
- Microload
  125 VAC, 0.1 A
  30 VDC, 0.1 A

Minimum applicable load
5 VDC, 1 mA

▶ Momentary operation
...Self-resetting
▶ Alternate operation
...Self-holding

(3) Screen Pattern

Illumination-only models

Symbol	Screen pattern
1	Single screen
3	Vertical 2-split screen (rectangular models only)

- Models with colored illumination can be ordered individually. Refer to page 5 for details.

▶ Colored Illumination

Unlit	Lit
White	Color

The built-in LED is colored.

(4) Lighting Method

LED-lighted Models

Symbol	Rated voltage
05E	5 VDC
12E	12 VDC
24E	24 VDC

Incandescent Lamp-lighted Models

Symbol	Rated voltage
06	6 VAC/VDC
14	14 VAC/VDC
28	28 VAC/VDC

(5) Operation Unit Color For LED

Symbol	Color
R	Red
Y	Yellow
G	Green
W	White *

Incandescent Lamp-lighted Models

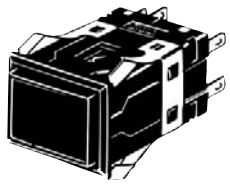
Symbol	Color
R	Red
Y	Yellow
G	Green
A	Blue
W	White *

* The color cap is transparent.

Number of Built-in LEDs and Incandescent Lamps

Model	Screen pattern	LED	Incandescent lamp
A3SJ	Single screen	2	1
	Vertical 2-split screen	2	2
A3SA	Single screen	1	1

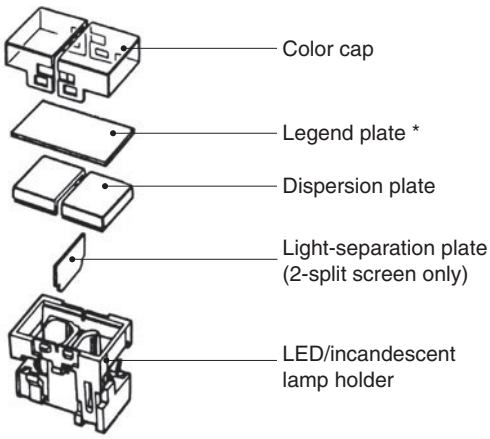
Type	Structure of Split-screen Operation Unit



Single screen
(Rectangular models and square models)

Vertical 2-split screen
(Rectangular models only)

A3SJ



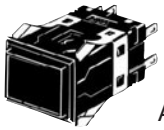
* Not included for the Square Models (A3SA) with incandescent lamp.

Ordering Information

Ordering as a Set ..... The model numbers used to order sets of Units are given in the following tables. One set comprises the Operation Unit, Lamp, and Socket Unit.

Standard Loads

Rectangular Models



A3SJ

Single screen: 1

Vertical 2-split screen: 1 2

Single screen

Output	Lighting	Contact type / Operation	Standard load (250 VAC, 2 A; 125 VDC 0.4 A) Momentary operation (Self-resetting)	Standard load (250 VAC, 2 A; 125 VDC 0.4 A) Alternate operation (Self-holding)	Operation Unit color symbol
SPDT	LED	5 VDC	A3SJ-90A1-05E□	A3SJ-90B1-05E□	Enter the desired color symbol for the Pushbutton in □. R (Red) Y (Yellow) G (Green) A (Blue) * W (White)
		12 VDC	A3SJ-90A1-12E□	A3SJ-90B1-12E□	
		24 VDC	A3SJ-90A1-24E□	A3SJ-90B1-24E□	
	Incandescent lamp	6 VAC/VDC	A3SJ-90A1-06□	A3SJ-90B1-06□	
		14 VAC/VDC	A3SJ-90A1-14□	A3SJ-90B1-14□	
		28 VAC/VDC	A3SJ-90A1-28□	A3SJ-90B1-28□	
DPDT	LED	5 VDC	A3SJ-90C1-05E□	A3SJ-90D1-05E□	
		12 VDC	A3SJ-90C1-12E□	A3SJ-90D1-12E□	
		24 VDC	A3SJ-90C1-24E□	A3SJ-90D1-24E□	
	Incandescent lamp	6 VAC/VDC	A3SJ-90C1-06□	A3SJ-90D1-06□	
		14 VAC/VDC	A3SJ-90C1-14□	A3SJ-90D1-14□	
		28 VAC/VDC	A3SJ-90C1-28□	A3SJ-90D1-28□	

* Incandescent lamp only.

Vertical 2-split screen

Output	Lighting	Contact type / Operation	Standard load (250 VAC, 2 A; 125 VDC 0.4 A) Momentary operation (Self-resetting)	Standard load (250 VAC, 2 A; 125 VDC 0.4 A) Alternate operation (Self-holding)	Operation Unit color symbol
SPDT	LED	24 VDC	A3SJ-90A3-24E□□	A3SJ-90B3-24E□□	Enter the desired color symbol for the Pushbutton in □□. R (Red) Y (Yellow) G (Green) W (White) A (Blue) *
	Incandescent lamp	28 VDC	A3SJ-90A3-28□□	A3SJ-90B3-28□□	
DPDT	LED	24 VDC	A3SJ-90C3-24E□□	A3SJ-90D3-24E□□	
	Incandescent lamp	28 VDC	A3SJ-90C3-28□□	A3SJ-90D3-28□□	

* Incandescent lamp only.

Microloads

Single screen

Output	Lighting	Contact type / Operation	Microload (125 VAC, 0.1 A; 30 VDC 0.1 A) Momentary operation (Self-resetting)	Operation Unit color symbol
SPDT	LED	5 VDC	A3SJ-90E1-05E□	Enter the desired color symbol for the Pushbutton in □. R (Red) Y (Yellow) G (Green) A (Blue) * W (White)
		12 VDC	A3SJ-90E1-12E□	
		24 VDC	A3SJ-90E1-24E□	
	Incandescent lamp	6 VAC/VDC	A3SJ-90E1-06□	
		14 VAC/VDC	A3SJ-90E1-14□	
		28 VAC/VDC	A3SJ-90E1-28□	
DPDT	LED	5 VDC	A3SJ-90G1-05E□	
		12 VDC	A3SJ-90G1-12E□	
		24 VDC	A3SJ-90G1-24E□	
	Incandescent lamp	6 VAC/VDC	A3SJ-90G1-06□	
		14 VAC/VDC	A3SJ-90G1-14□	
		28 VAC/VDC	A3SJ-90G1-28 □	

Vertical 2-split screen

Output	Lighting	Contact type / Operation	Microload (125 VAC, 0.1 A; 30 VDC 0.1 A) Momentary operation (Self-resetting)	Operation Unit color symbol
SPDT	LED	24 VDC	A3SJ-90E3-24E□□	Enter the desired color symbol for the Pushbutton in □□. R (Red) Y (Yellow) G (Green) W (White) A (Blue) *
	Incandescent lamp	28 VDC	A3SJ-90E3-28□□	
DPDT	LED	24 VDC	A3SJ-90G3-24E□□	
	Incandescent lamp	28 VDC	A3SJ-90G3-28□□	

* Incandescent lamp only.

Individual models: Refer to pages 6 to 9.
(The Pushbutton, Lamp, and Switch can be ordered separately.)

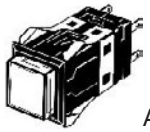
■ Specifications: Refer to page 12. ■ Dimensions: Refer to page 14.
■ Accessories: Refer to pages 10 to 11.

Ordering Information

Ordering as a Set ..... The model numbers used to order sets of Units are given in the following tables. One set comprises the Operation Unit, Lamp, and Socket Unit.

Standard Loads

Square Models



A3SA

Single screen

Single screen

Output	Lighting	Contact type / Operation	Standard load (250 VAC, 2 A; 125 VDC 0.4 A)		Operation Unit color symbol
			Momentary operation (Self-resetting)	Alternate operation (Self-holding)	
SPDT	LED	5 VDC	A3SA-90A1-05E□	A3SA-90B1-05E□	Enter the desired color symbol for the Pushbutton in □. R (Red) Y (Yellow) G (Green) A (Blue) * W (White)
		12 VDC	A3SA-90A1-12E□	A3SA-90B1-12E□	
		24 VDC	A3SA-90A1-24E□	A3SA-90B1-24E□	
	Incandescent lamp	6 VAC/VDC	A3SA-90A1-06□	A3SA-90B1-06□	
		14 VAC/VDC	A3SA-90A1-14□	A3SA-90B1-14□	
		28 VAC/VDC	A3SA-90A1-28□	A3SA-90B1-28□	
DPDT	LED	5 VDC	A3SA-90C1-05E□	A3SA-90D1-05E□	
		12 VDC	A3SA-90C1-12E□	A3SA-90D1-12E□	
		24 VDC	A3SA-90C1-24E□	A3SA-90D1-24E□	
	Incandescent lamp	6 VAC/VDC	A3SA-90C1-06□	A3SA-90D1-06□	
		14 VAC/VDC	A3SA-90C1-14□	A3SA-90D1-14□	
		28 VAC/VDC	A3SA-90C1-28□	A3SA-90D1-28□	

* Incandescent lamp only.

Microloads

Single screen

Output	Lighting	Contact type / Operation	Microload (125 VAC, 0.1 A; 30 VDC 0.1 A)	Operation Unit color symbol
			Momentary operation (Self-resetting)	
SPDT	LED	5 VDC	A3SA-90E1-05E□	Enter the desired color symbol for the Pushbutton in □. R (Red) Y (Yellow) G (Green) A (Blue) * W (White)
		12 VDC	A3SA-90E1-12E□	
		24 VDC	A3SA-90E1-24E□	
	Incandescent lamp	6 VAC/VDC	A3SA-90E1-06□	
		14 VAC/VDC	A3SA-90E1-14□	
		28 VAC/VDC	A3SA-90E1-28□	
DPDT	LED	5 VDC	A3SA-90G1-05E□	
		12 VDC	A3SA-90G1-12E□	
		24 VDC	A3SA-90G1-24E□	
	Incandescent lamp	6 VAC/VDC	A3SA-90G1-06□	
		14 VAC/VDC	A3SA-90G1-14□	
		28 VAC/VDC	A3SA-90G1-28□	

* Incandescent lamp only.

Individual models: Refer to pages 6 to 9.
(The Pushbutton, Lamp, and Switch can be ordered separately.)

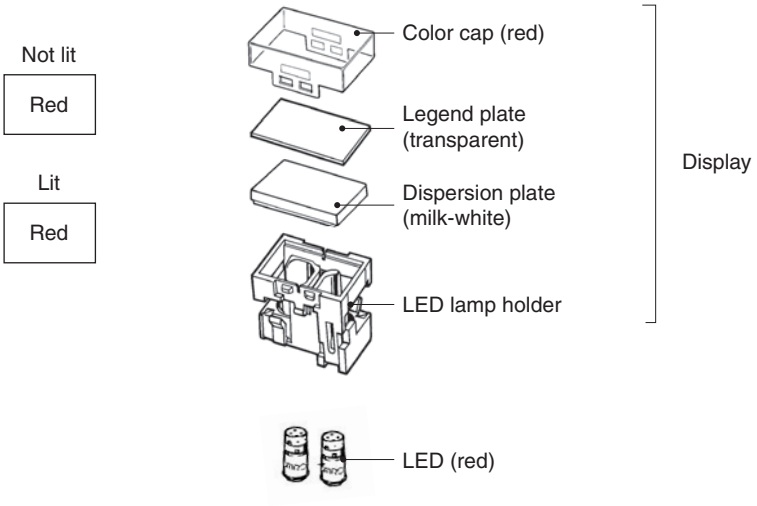
■ Specifications: Refer to page 12. ■ Dimensions: Refer to page 14.
■ Accessories: Refer to pages 10 to 11.

Ordering Information

Illumination-only and Colored-illumination LED Models

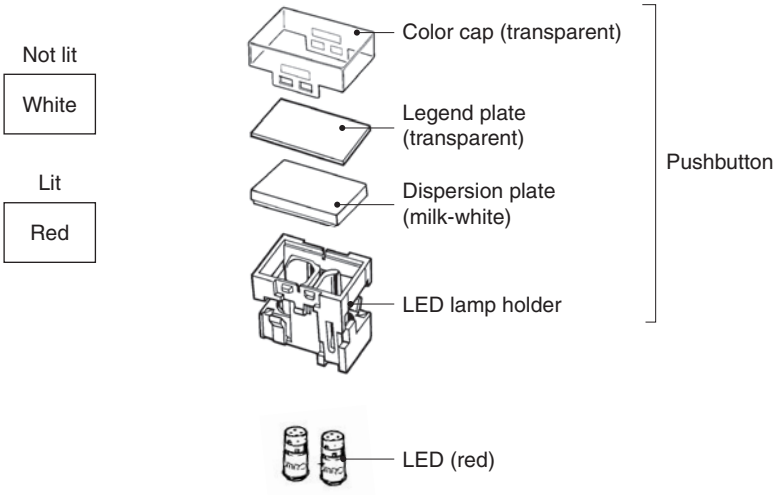
Illumination only describes LED models for which the screen color is the same whether the LED is lit or not. The screen simply becomes brighter when the LED lights.

Example: Red LED

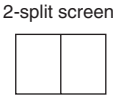


Colored illumination describes LED models for which the screen color is white when the LED is not lit and changes to the color of the LED lamp when the LED is lit.

Example: Red LED



Ordering .....With colored-illumination models, order the Display (Operation Unit), Lamp, and Socket Unit as shown in the following table.

Display (Operation Unit)			LED	Socket Unit
Single screen	Rectangular models	**A3SJ-5801**	Select the LED lamps to suit your desired coloration from the selection on page 9.	Select from the Switches on page 9.
	Square models	**A3SA-5801**		
2-split screen 	Rectangular models only	**A3SJ-5921**		

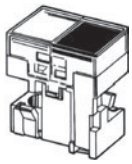
Ordering Information

Ordering Individually ..... Operation Units, Lamps, and Socket Units can be ordered separately. Combinations that are not available as sets can be created using individual Units. Also, store the parts as spares for maintenance and repairs.

Ordering ..... Specify a model number from the following page.

LED-lighted Models

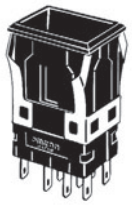
Operation Unit



Lamp (LED Lamp)

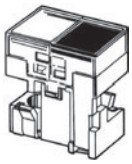
· DC-only
SLL-□□E□

Socket Unit



Incandescent Lamp-lighted Models

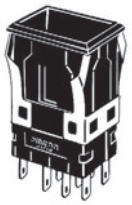
Operation Unit



Lamp (Incandescent Lamp)

· Standard lamp
SLL-□□

Socket Unit



Ordering set combinations: Refer to pages 3 to 4.

■ Specifications: Refer to page 12. ■ Dimensions: Refer to page 14.
■ Accessories: Refer to pages 10 to 11.

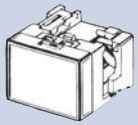
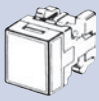
Ordering Information

Ordering Individually .....Operation Units, Lamps, and Socket Units can be ordered separately. Combinations that are not available as sets can be created using individual Units. Also, store the parts as spares for maintenance and repairs.

Operation Unit

LED-lighted Models

(LED is not built in.)

Screen pattern		Appearance	Display color	Rectangular Models (2 LEDs)  (transparent legend plate built in)	Square Models (1 LED)  (transparent legend plate built in)
Single screen			White	A3SJ-5801	A3SA-5801
			Red	A3SJ-5802	A3SA-5802
			Green	A3SJ-5803	A3SA-5803
			Yellow	A3SJ-5805	A3SA-5805
2-split screen *	Standard split screen		White/red	A3SJ-5901	–
			White/green	A3SJ-5902	
			White/yellow	A3SJ-5904	
			Red/green	A3SJ-5905	
			Red/yellow	A3SJ-5907	
			Green/yellow	A3SJ-5909	
	Reverse split screen		Red/white	A3SJ-5911	–
			Green/white	A3SJ-5912	
			Yellow/white	A3SJ-5914	
			Green/red	A3SJ-5915	
			Yellow/red	A3SJ-5917	
			Yellow/green	A3SJ-5919	
	One-color 2-split screen		White/white	A3SJ-5921	–
			Red/red	A3SJ-5922	
			Green/green	A3SJ-5923	
			Yellow/yellow	A3SJ-5925	

Note: The color cap is transparent when the display color is white.
* Two-split screen configurations are given with the OMRON surface of the case downward.

Ordering set combinations: Refer to pages 3 to 4.

■ Specifications: Refer to page 12. ■ Dimensions: Refer to page 14.
■ Accessories: Refer to pages 10 to 11.

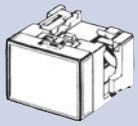
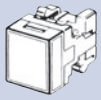
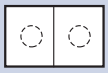
Ordering Information

Ordering Individually ..... Operation Units, Lamps, and Socket Units can be ordered separately. Combinations that are not available as sets can be created using individual Units. Also, store the parts as spares for maintenance and repairs.

Operation Unit

Incandescent Lamp-lighted Models

(Incandescent lamp is not built in.)

Screen pattern		Appearance	Display color	Rectangular  (transparent legend plate built in)	Square  (Legend plate not included)
Single screen		One lamp	White	A3SJ-5301	A3SA-5301
			Red	A3SJ-5302	A3SA-5302
			Green	A3SJ-5303	A3SA-5303
			Blue	A3SJ-5304	A3SA-5304
			Yellow	A3SJ-5305	A3SA-5305
		Two lamps	White	A3SJ-5321	–
			Red	A3SJ-5322	
			Green	A3SJ-5323	
			Blue	A3SJ-5324	
			Yellow	A3SJ-5325	
2-split screen *	Standard split screen		White/red	A3SJ-5201	–
			White/green	A3SJ-5202	
			White/blue	A3SJ-5203	
			White/yellow	A3SJ-5204	
			Red/green	A3SJ-5205	
			Red/blue	A3SJ-5206	
			Red/yellow	A3SJ-5207	
			Green/blue	A3SJ-5208	
			Green/yellow	A3SJ-5209	
			Blue/yellow	A3SJ-5210	
	Reverse split screen		Red/white	A3SJ-5211	–
			Green/white	A3SJ-5212	
			Blue/white	A3SJ-5213	
			Yellow/white	A3SJ-5214	
			Green/red	A3SJ-5215	
			Blue/red	A3SJ-5216	
			Yellow/red	A3SJ-5217	
			Blue/green	A3SJ-5218	
			Yellow/green	A3SJ-5219	
			Yellow/blue	A3SJ-5220	
	One-color 2-split screen		White/white	A3SJ-5221	–
			Red/red	A3SJ-5222	
			Green/green	A3SJ-5223	
			Blue/blue	A3SJ-5224	
			Yellow/yellow	A3SJ-5225	

Note: The color cap is transparent when the display color is white.
* Two-split screen configurations are given with the OMRON surface of the case downward.

Ordering set combinations: Refer to pages 3 to 4.

■ Specifications: Refer to page 12. ■ Dimensions: Refer to page 14.
■ Accessories: Refer to pages 10 to 11.

Ordering Information

Ordering Individually .....Operation Units, Lamps, and Socket Units can be ordered separately. Combinations that are not available as sets can be created using individual Units. Also, store the parts as spares for maintenance and repairs.

Lamp

LED Lamp

Operating voltage / Color	5 VDC	12 VDC	24 VDC
	Model (DC only)	Model (DC only)	Model (DC only)
Red	SLL-05ER	SLL-12ER	SLL-24ER
Yellow	SLL-05EY	SLL-12EY	SLL-24EY
Green	SLL-05EG	SLL-12EG	SLL-24EG
White	SLL-05EW	SLL-12EW	SLL-24EW

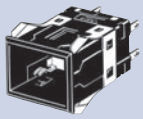
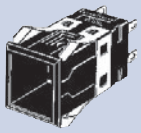
Note: The A3SJ (M2SJ) requires two LEDs for each Switch. The A3SA (M2SA) requires one LED.

Incandescent Lamp

Lamp type / Operating voltage	Standard lamp	Low-voltage lamp
5 VAC/VDC	SLL-06	SLL-06H
12 VAC/VDC	SLL-14	SLL-14H
24 VAC/VDC	SLL-28	SLL-28H

Note: The low-voltage lamp has an advantage in that it generates less heat.

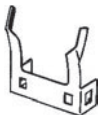
Switch (common to both LED models and incandescent lamp-lighted models)

Contact type		Number of outputs	Appearance / Operation	Rectangular models 	Square models 	Selection precautions
Standard load	Silver contacts	1	Momentary operation	A3SJ-8010	A3SA-7010	• Use the Socket Unit in combination with the same shape Operation Unit (rectangular or square). Example: For the A3SJ-5801 Rectangular Operation Unit, select the A3SJ-8□□0 Socket Unit. • Momentary operation is self-resetting, and alternate operation is self-holding (i.e., push-on, push-off).
			Alternate operation	A3SJ-8020	A3SA-7020	
		2	Momentary operation	A3SJ-8030	A3SA-7030	
			Alternate operation	A3SJ-8040	A3SA-7040	
Micro-load	Gold alloy contacts	1	Momentary operation	A3SJ-8050	A3SA-7050	
			Alternate operation	A3SJ-8060	A3SA-7060	
		2	Momentary operation	A3SJ-8070	A3SA-7070	
			Alternate operation	A3SJ-8080	A3SA-7080	

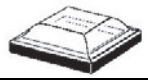
Ordering Information

Accessories, Replacements, and Tools

Accessories for Rectangular Models

Name	Appearance	Classification	Model	Application precautions
Barrier		Short edge Barriers (1 pair)	**A3SA-4001**	The purpose of a Barrier is to prevent malfunctioning and to improve design image of the mounting panel. There is one intermediate Barrier and one pair of edge Barriers (2 Barriers). Mount Short Barriers horizontally. Mount Long Barriers vertically.
		Short intermediate Barriers	**A3SA-4002**	
		Long edge Barriers (1 pair)	**A3SJ-4003**	
		Long intermediate Barriers	**A3SJ-4004**	
Switch Guard		–	**A3SJ-5050**	Cannot be used with Barrier or Seal Cover.
Seal Cover		–	**A3SJ-5060**	• Cannot be used with Barrier or Switch Guard. • Cap material: Vinyl chloride
Long Mounting Plate		1 pair	**A3SJ-3002**	Use when vertically mounting individual (with Barrier) or multiple Switches (in standard mounting style and with Barrier). A Short Mounting Plate is attached to the Switch; replace it with the long one.

Accessories for Square Models

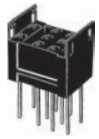
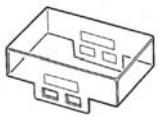
Name	Appearance	Classification	Model	Application precautions
Barrier		Short Edge Barriers (1 pair)	**A3SA-4001**	The purpose of the Barrier is to prevent malfunctioning and to improve design image of the mounting panel.
		Short Intermediate Barrier	**A3SA-4002**	
Switch Guard		–	**A3SA-5050**	Cannot be used with Barrier or Seal Cover.
Seal Cover		–	**A3SA-5060**	• Cannot be used with Barrier or Switch Guard. • Cap material: Vinyl chloride

■ Accessory mounting: Refer to page 19.

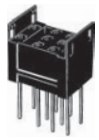
Ordering Information

Accessories, Replacements, and Tools

Replacements for Rectangular Models

Name	Appearance	Classification		Model	Application precautions
Socket		Wire-wrap terminals		**A3SJ-4104**	• Sockets cannot be used for multiple mounting.
		PCB terminals		**A3SJ-4105**	
		Solder terminals		**A3SJ-4106**	
Dispersion plate		Milk-white	Single screen	**A3SJ-5107**	–
Color cap		Transparent	Single screen	**A3SJ-5600**	• Contact your OMRON representative for color changes or inscribing. • If LEDs are to be used, use a color cap that matches the LED color. • The blue color cap is only for incandescent lamps.
		White		**A3SJ-5601**	
		Red		**A3SJ-5602**	
		Green		**A3SJ-5603**	
		Blue		**A3SJ-5604**	
		Yellow		**A3SJ-5605**	
		Transparent	2-split screen	**A3SJ-5630**	
		White		**A3SJ-5631**	
		Red		**A3SJ-5632**	
		Green		**A3SJ-5633**	
		Blue		**A3SJ-5634**	
		Yellow		**A3SJ-5635**	
Legend plate		Transparent		**A3SJ-4204**	A transparent legend plate is mounted on the Operation Unit.
		Milk-white		**A3SJ-4203**	

Replacements for Square Models

Name	Appearance	Classification	Model	Application precautions
Socket		Wire-wrap terminals	**A3SA-4101**	• Sockets cannot be used for multiple mounting.
		PCB terminals	**A3SA-4102**	
		Solder terminals	**A3SA-4103**	
Dispersion plate		Milk-white	**A3SA-5107**	–
Color cap		Transparent	**A3SA-5600**	• Contact your OMRON representative for color changes or inscribing. • If LED colors are to be used, use a color cap that matches the LED color.
		White	**A3SA-5601**	
		Red	**A3SA-5602**	
		Green	**A3SA-5603**	
		Blue	**A3SA-5604**	
		Yellow	**A3SA-5605**	
Legend plate		Transparent	**A3SA-4204**	A transparent color cap is mounted to a standard Display. Legend plates cannot be used, however, with Displays for incandescent lamps.
		Milk-white	**A3SA-4203**	

Tools

Name	Appearance	Classification	Model	Application precautions
Extractor		–	**A3PJ-5080**	Convenient for extracting the Operation Unit.

■ Accessory mounting: Refer to page 19.

Specifications

Approved Standard Ratings

UL (File No. E41515), CSA (File No. LR45258)

Standard Load: 3 A at 125 VAC
2 A at 250 VAC
Microload: 0.1 A at 125 VAC
0.1 A at 30 VDC

Note: Certification has been obtained for the Switch Unit.
For detailed information on individual products that have received certification, consult your supplier.

Ratings

For Standard Loads

Rated voltage	Non-inductive load (A)				Inductive load (A)			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125 VAC	3		1	0.7	2		1.5	1
250 VAC	2		0.7	0.5	1.5		1	0.7
8 VDC	3		1		2		1.5	
14 VDC	3		1		1.5		1.5	
30 VDC	2		1		1.5		1	
125 VDC	0.4		0.05		0.4		0.05	
250 VDC	0.2		0.03		0.2		0.03	

Note: 1. The above values are for steady-state currents.
2. Inductive load: Power factor = 0.4; time constant = 7 ms.
3. The lamp load has an inrush current of 10 times the steady-state current.
4. The motor load has an inrush current of 6 times the steady-state current.

The rated values are for testing conducted under the following conditions.
(1) Ambient temperature: 20±2°C
(2) Ambient humidity: 65% ±5%RH
(3) Operating frequency: 20 times/min

For Microloads

Rating	0.1 A at 30 VDC (resistive load); 0.1 A at 125 VAC (resistive load)
Minimum applicable load	1 mA at 5 VDC

LED Lamp

Type	Applied voltage	Rated voltage	Rated current	Built-in limiting resistance
DC only	5 VDC±5%	5 VDC	30 mA	39 Ω
	12 VDC±5%	12 VDC	15 mA	270 Ω
	24 VDC±5%	24 VDC	12.5 mA	1300 Ω

Incandescent Lamp

Applied voltage	Rated voltage	Standard lamp	Low-power lamp
		Rated current	Rated current
5 VAC/VDC	6 VAC/VDC	200 mA	100 mA
12 VAC/VDC	14 VAC/VDC	80 mA	40 mA
24 VAC/VDC	28 VAC/VDC	40 mA	25 mA

Characteristics

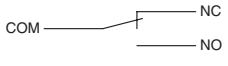
Operating frequency	Mechanical	Momentary operation models: 120 operations/min max. *1
	Electrical	20 operations/min max.
Insulation resistance		100 MΩ min. (at 500 VDC)
Dielectric strength	Between terminals of same polarity	1,000 VAC, 50/60 Hz for 1 minute
	Between terminals of different polarity	2,000 VAC, 50/60 Hz for 1 minute
	Between current-carrying metal part and ground	2,000 VAC, 50/60 Hz for 1 minute
	Between each terminal and non-current-carrying metal part	2,000 VAC, 50/60 Hz for 1 minute
	Between lamp terminals	1,000 VAC, 50/60 Hz for 1 minute *2
Vibration resistance	Malfunction	10 to 55 Hz, 1.5-mm double amplitude (1 ms max.)
Shock resistance	Destruction	500 m/s² max.
	Malfunction	200 m/s² max. (1 ms max.)
Life expectancy	Mechanical	Momentary operation models: 1,000,000 operations min. Alternate operation models: 100,000 operations min. (One operation consists of set and reset operations.)
	Electrical	100,000 operations min. (rated load)
Weight		Approx. 10 g
Inrush current	NC	Standard load: 10 A max.
	NO	Standard load: 10 A max.
Ambient operating temperature		−10 to 50°C (with no icing or condensation)
Ambient operating humidity		35% to 85% RH
Ambient storage temperature		−25 to 65°C (with no icing or condensation)
Degree of protection		IP00
Electric shock protection class		Class II
PTI (proof tracking index)		175
Pollution degree		3 (IEC 60947-5-1)

*1. With alternate operation models, 60 operations/min max. One operation cycle consists of set and reset operations.
*2. With no incandescent lamp or LED lamp mounted.

Operating Characteristics

Operating characteristics	Operation	Momentary operation models	Alternate operation models
Operating force	OF max.	3.92 N	4.90 N
Releasing force	RF min.	0.49 N	0.294 N
Total travel	TT	Approx. 3 mm	Approx. 3 mm
Pretravel	PT max.	2.2 mm	2.2 mm
Lock travel alternate	LTA min.	–	0.5 mm

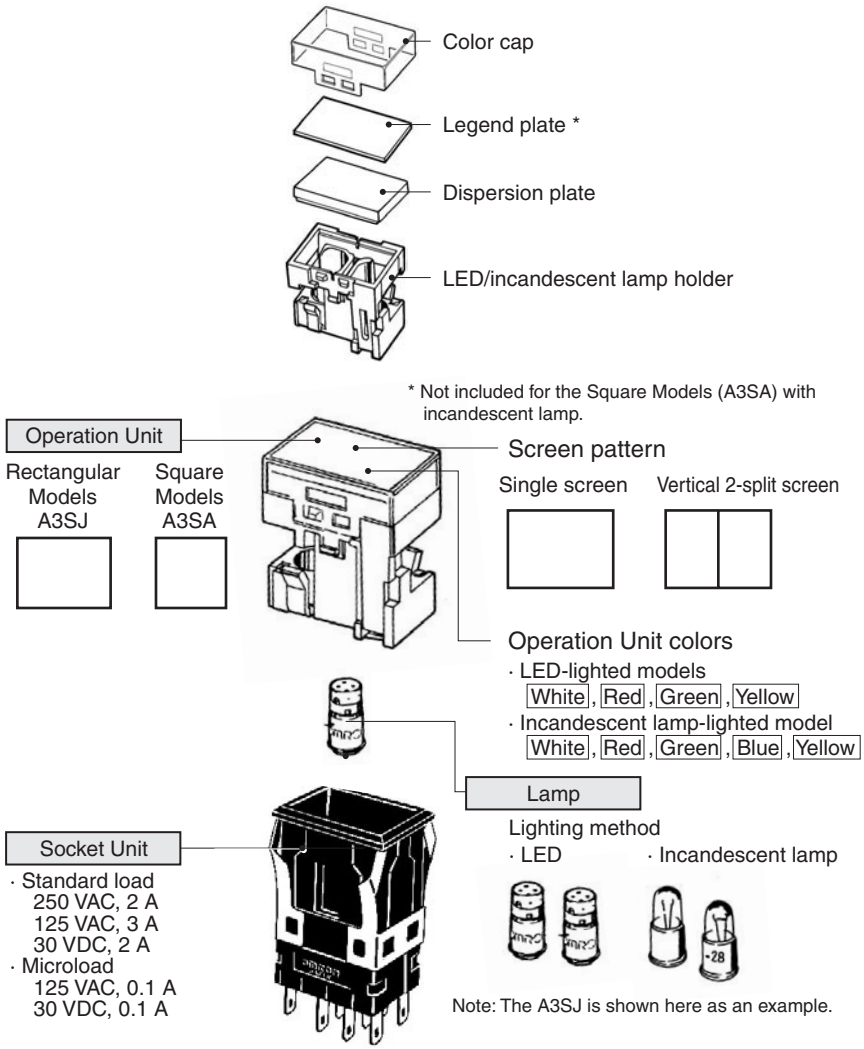
Contact Form

Name	Contact Form
Double-throw contacts	

Nomenclature

Model Structure

Operation Unit Structure

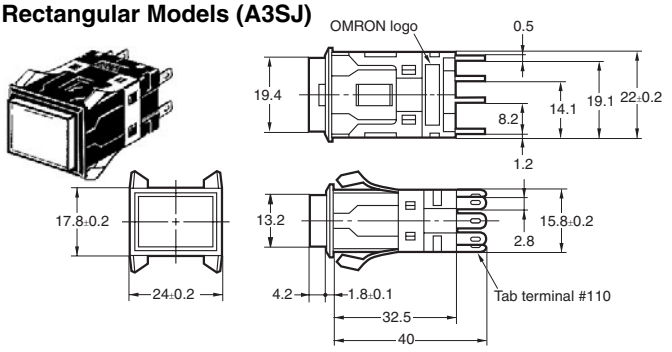


Dimensions

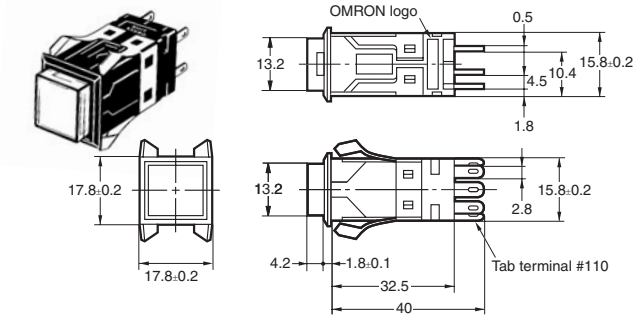
The Dimension shows 2-switch outputs.

(Unit: mm)

Rectangular Models (A3SJ)



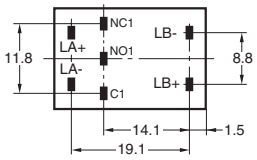
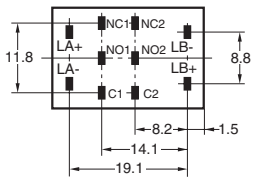
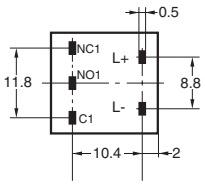
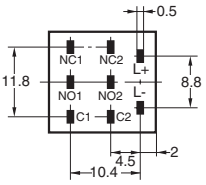
Square Models (A3SA)



Note: Unless specified, a tolerance of ±0.4 mm applies for all dimensions. Use a mounting panel thickness of 1 to 4 mm.

Terminal Arrangement

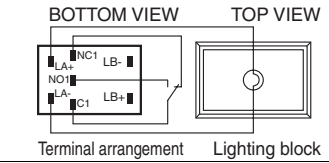
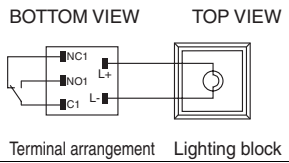
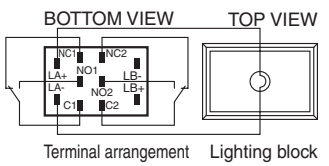
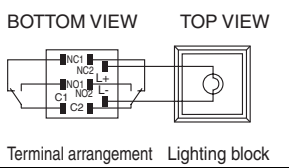
Bottom View (All are shown with the OMRON logo facing down.)

Rectangular Models (A3SJ)		Square Models (A3SA)	
SPDT	**DPDT**	**SPDT**	**DPDT**
			

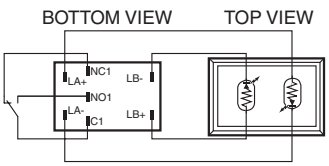
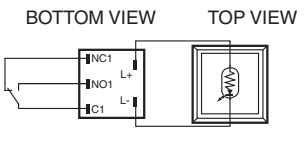
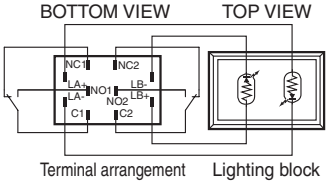
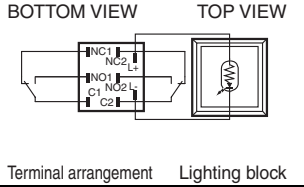
Note: The arrangements given above are not indicated on the Socket Unit.

Contact Type

Incandescent Lamp-lighted Models (The terminal arrangements are the same as for the LED-lighted models.)

Type / Model	Rectangular Models (A3SJ)	Square Models (A3SA)
SPDT		
DPDT		

LED Lamp-lighted Models

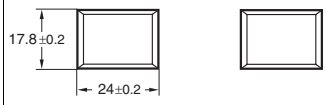
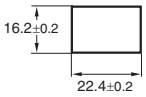
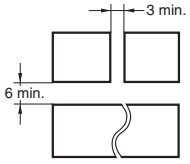
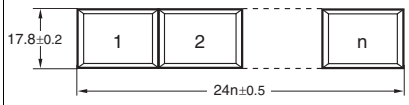
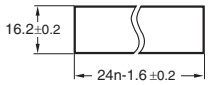
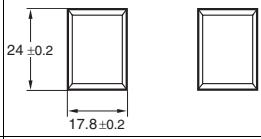
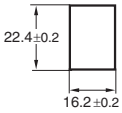
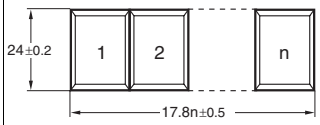
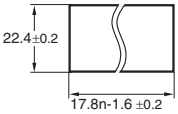
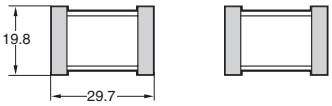
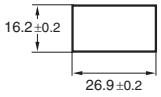
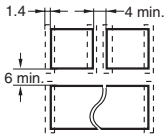
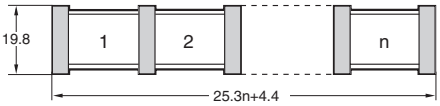
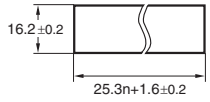
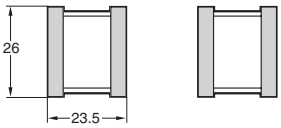
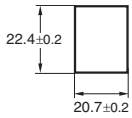
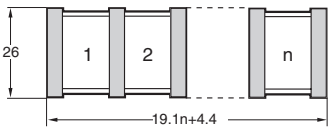
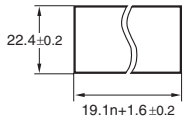
Type / Model	Rectangular Models (A3SJ)	Square Models (A3SA)
SPDT		
DPDT		

Dimensions

(Unit: mm)

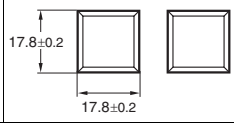
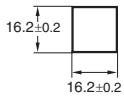
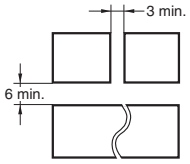
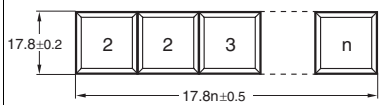
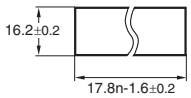
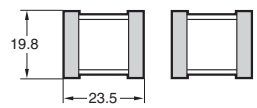
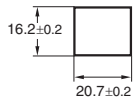
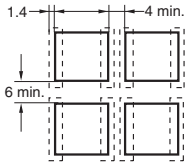
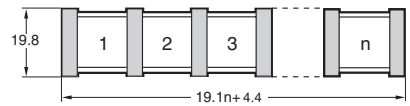
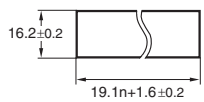
Panel Cutout (If using a Switch Guard or Seal Cover, refer to the panel cutout diagrams on page 17.)

Rectangular Models (A3SJ)

Classification		Mounting design	Panel cutout	Remarks
Flange mount models	Individual mounting, horizontal			Panel cutout spacing between rows of Units: 
	Multiple mounting, horizontal			
	Individual mounting, vertical	 Mount to Long Mounting Plate (A3SJ-3002) before use.		
	Multiple mounting, vertical	 Mount to Long Mounting Plate (A3SJ-3002) before use.		
Barrier mount models	Individual mounting, horizontal			Panel cutout spacing between rows of Units: 
	Multiple mounting, horizontal			
	Individual mounting, vertical	 Mount to Long Mounting Plate (A3SJ-3002) before use.		
	Multiple mounting, vertical	 Mount to Long Mounting Plate (A3SJ-3002) before use.		Dotted line indicates the position of each mounting Barrier.

* If the panel is to be finished (e.g., coated), make sure that the panel meets the specified dimensions after the coating.

Square Models (A3SA)

Classification		Mounting design	Panel cutout	Remarks
Flange mount models	Individual mounting			Panel cutout spacing between rows of Units: 
	Multiple mounting			
Barrier mount models	Individual mounting			Panel cutout spacing between rows of Units: 
	Multiple mounting			Dotted line indicates the position of each mounting Barrier.

* If the panel is to be finished (e.g., coated), make sure that the panel meets the specified dimensions after the coating.

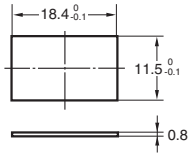
Dimensions

(Unit: mm)

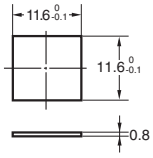
Accessory Mounting Dimensions

Legend Plate

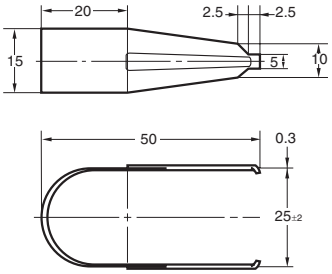
Rectangular Models
A3SJ-4203/-4204



Square Models
A3SA-4203/-4204



Extractor
A3PJ-5080

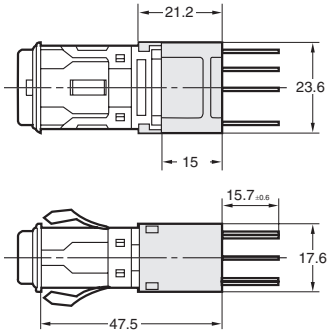


Note: Made from stainless steel.

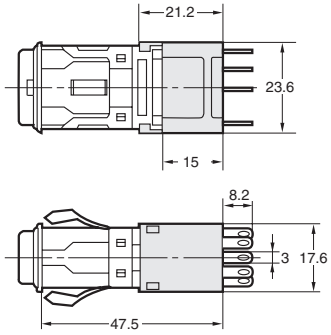
Socket-mounting Dimensions

Rectangular Models

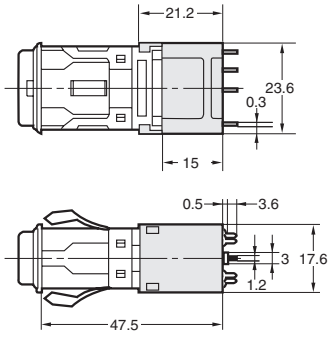
Wire-wrap Terminals
A3SJ-4104



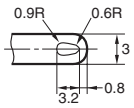
Solder Terminals
A3SJ-4106



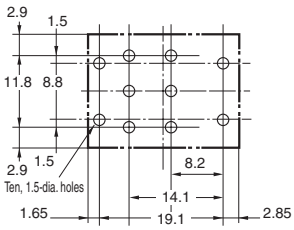
PCB Terminals
A3SJ-4105



Terminal Hole Dimensions



PCB Cutout
(Bottom View)



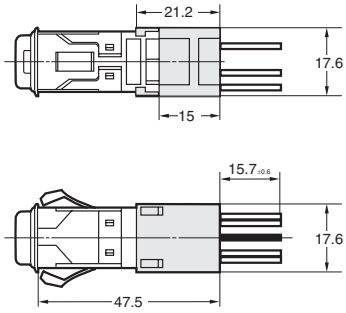
Dimensions

(Unit: mm)

Square Models

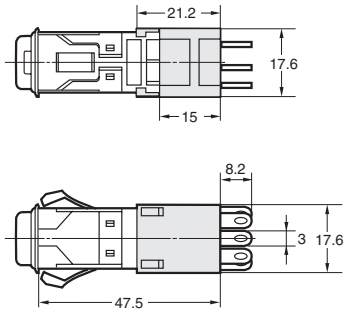
Wire-wrap Terminals

A3SA-4101



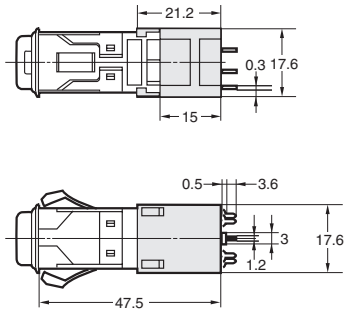
Solder Terminals

A3SA-4103

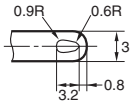


PCB Terminals

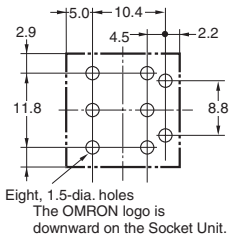
A3SA-4102



Terminal Hole Dimensions



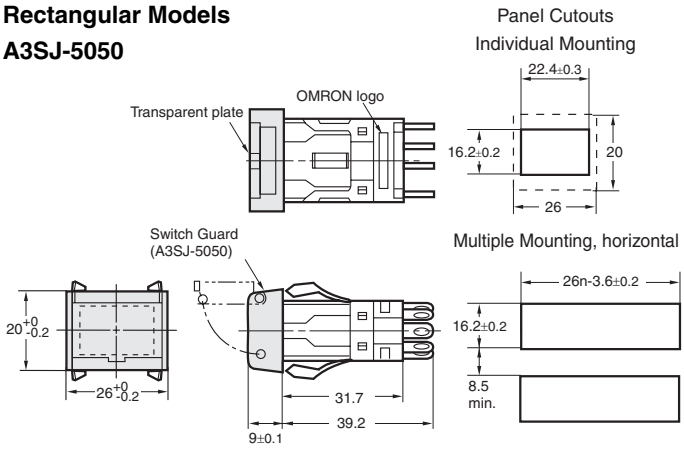
PCB Cutout (bottom view)



Switch and Guard Mounting Dimensions

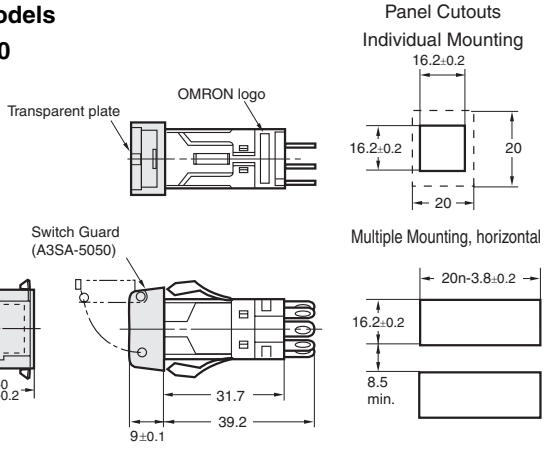
Rectangular Models

A3SJ-5050



Square Models

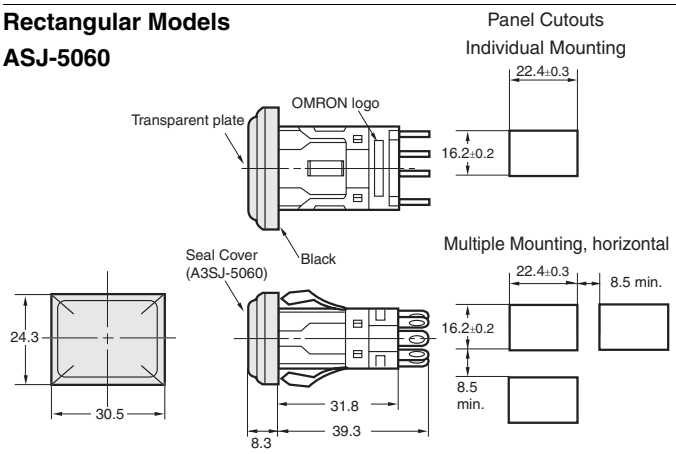
A3SA-5050



Seal Cover Mounting Dimensions

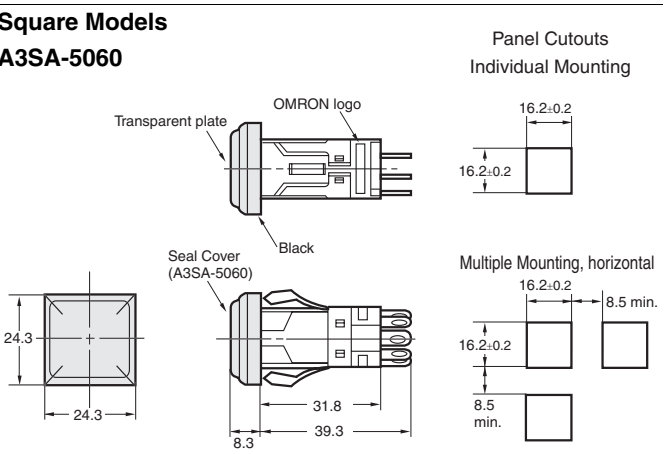
Rectangular Models

ASJ-5060



Square Models

A3SA-5060



Note: 1. Recommended panel thickness: 1.0 to 3.3 mm
2. Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.

Safety Precautions

Refer to *Safety Precautions for All Pushbutton Switches*.

Precautions for Correct Use

Mounting

- Always make sure that the power is turned OFF before mounting, removing, or wiring the Switch, or performing maintenance. Electric shock or fire may occur.

Wiring

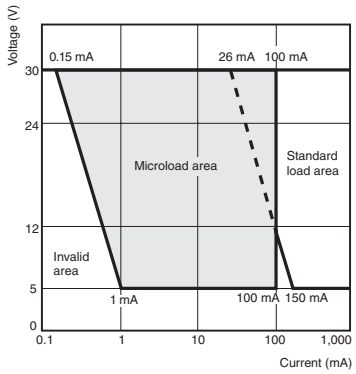
- For wiring, use a wire size that is appropriate for the applied voltage and the supplied current. Be sure to perform soldering according to the following conditions. Using the Switch with incomplete soldering may result in errors and heat, which may cause fire.
  (1) Manual soldering: Use a soldering iron with a tip temperature of 350°C maximum and complete soldering within 3 seconds.
  (2) Dip soldering: Solder at 350°C for 3 s or less.
  Wait for one minute after soldering before exerting any external force on the solder.
- Use non-corrosive liquid rosin as the flux.
- If screw-tightened terminals are used, hold the Socket Unit Set or Socket Unit and install the lead wiring applying a torque of less than 0.98 N·m to the Socket Unit. Applying a torque of more than 0.98 N·m may result in damage. The tightening torque is 0.59 to 0.78 N·m.
- Make sure that the insulating sheath of the wires does not come in contact with the Unit. If wiring is performed with the insulating sheath of the wires coming in contact with the Unit, use wire with a minimum heat resistance of 100°C.
- After wiring the Switch, make sure that there is a suitable isolation distance.

Operating Environment

- Do not use in locations that are subject to dust, oil, or metal fillings, because these may penetrate the interior the Switch and cause malfunction.

Using Microloads

- Using a standard load switch when a microload circuit is opened or closed may cause wear on the contacts. Use the switch within the operating range. (Refer to the diagram below.) Even when using microload models within the operating range shown below, if inrush current occurs when the contacts are opened or closed, it may cause the contact surface to become rough, and so decrease life expectancy. Therefore, insert a contact protection circuit where necessary.
  The minimum applicable load is the N-level reference value. This value indicates the malfunction reference level for the reliability level of 60% (λ 60) (conforming to JIS C5003).
  The equation λ 60 = 0.5 x 10^{-4}/time indicates that the estimated malfunction rate is less than 1/2,000,000 with a reliability level of 60%.



LED Lamp

- A current-limiting resistor for the LED lamp is built in, so no external resistor is required.

Rated voltage	Built-in limiting resistance
5 VDC	39 Ω
12 VDC	270 Ω
24 VDC	1300 Ω

Incandescent Lamp

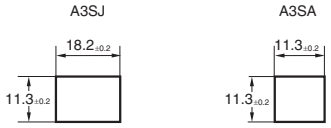
- It is advantageous in terms of service life and heat generation to apply 80% of the rated voltage (operating voltage) to the incandescent lamp.

Operation

- Always mount the Operation Unit before operating the Switch. (Using your fingers or tweezers to operate moving parts of the Switch may deform internal parts and cause malfunctions.)

Character Film

- If the character film is to be specially prepared, use heat-resistant film with a maximum thickness of 0.2 mm.



Others

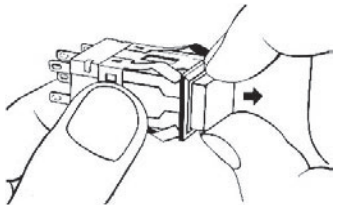
- If the panel is to be finished (e.g., coated), make sure that the panel meets the specified dimensions after the coating.

Application

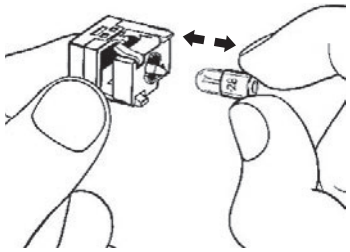
Replacing Incandescent and LED Lamps and Panel Mounting

Removing the Display

- Grasp the groove on the color cap surface, and pull it firmly toward you to remove the Display.
- An Extractor (A3PJ-5080) is available to conveniently remove the Display.

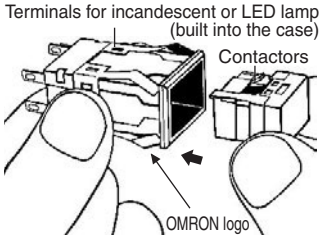


Mounting and Replacing Incandescent and LED Lamps



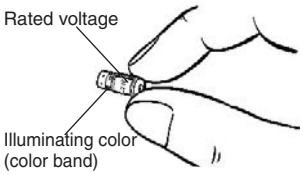
Inserting the Display into the Socket Unit

Insert the Operation Unit in the proper direction. With the OMRON logo downward, insert the Operation Unit so that the lamp/LED terminals on the inside surface of the Unit case and the contactors of the Display.



Rated Voltage and Color of LED

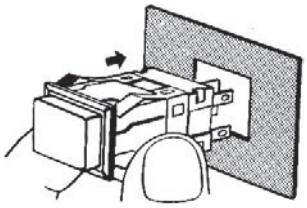
The LED voltage rating is indicated on the base. Use the LED within ±5% of voltage range.



Mounting to the Switch Panel

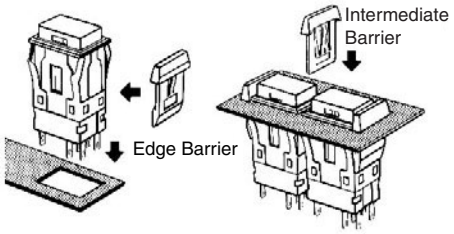
Mount the Socket Unit to the panel by inserting it from the front of the panel.

Mount the Socket Unit so that the OMRON logo is downward.



Barrier Mounting

- Place the Edge Barrier on the side of the Socket Unit, and then insert it into the panel.
- Insert the Intermediate Barrier between the Switches after inserting the Socket Units into the panel.

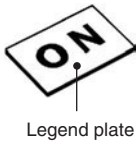


Inscribing Legend Plate Characters

Inscribing

A3SJ (M2SJ)

- Inscription depth: 0.5 mm max.
- The legend plate is made of polycarbonate, so apply an alcohol-based paint coating, such as melamine, phthalate, or acrylic resin paint when marking the legend.

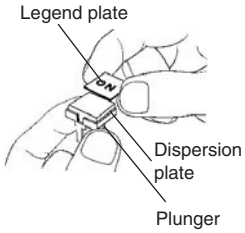


- When replacing the legend plate, be careful that the coil spring in the Display does not become removed.

Assembling the Legend Plate (Plunger)
A3SA (M2SA)

(LED Lamp)

(1) Assemble the color plate to the plunger, and then assemble the legend plate on top.

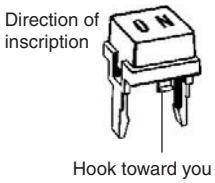


(Incandescent Lamp)

(2) Inscribe the surface of the plunger, and then coat the surface.

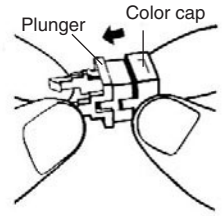
Lighted Square Pushbutton Switches

Assemble models A3SA-5301 to A3SA-5305 so that the hook is toward you.



Note: Legend plates cannot be used with A3SA Displays for incandescent lamps.

(3) Assemble the color cap to the inscribed plunger.

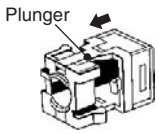


(4) Push in the color in the direction of the arrow to assemble the plunger and the lamp holder.

Lighted Square Pushbutton Switches

A3SA

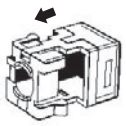
Perform the assembly so that the wide groove and the hook on the plunger are in the same direction.



Indicator

M2SA

Perform the assembly so that the wide groove and the hook on the plunger are in the same direction.



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2010.10

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Наши контакты:

Телефон: +7 812 627 14 35

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Адрес: 198099, Санкт-Петербург,
Промышленная ул, дом № 19, литера Н,
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